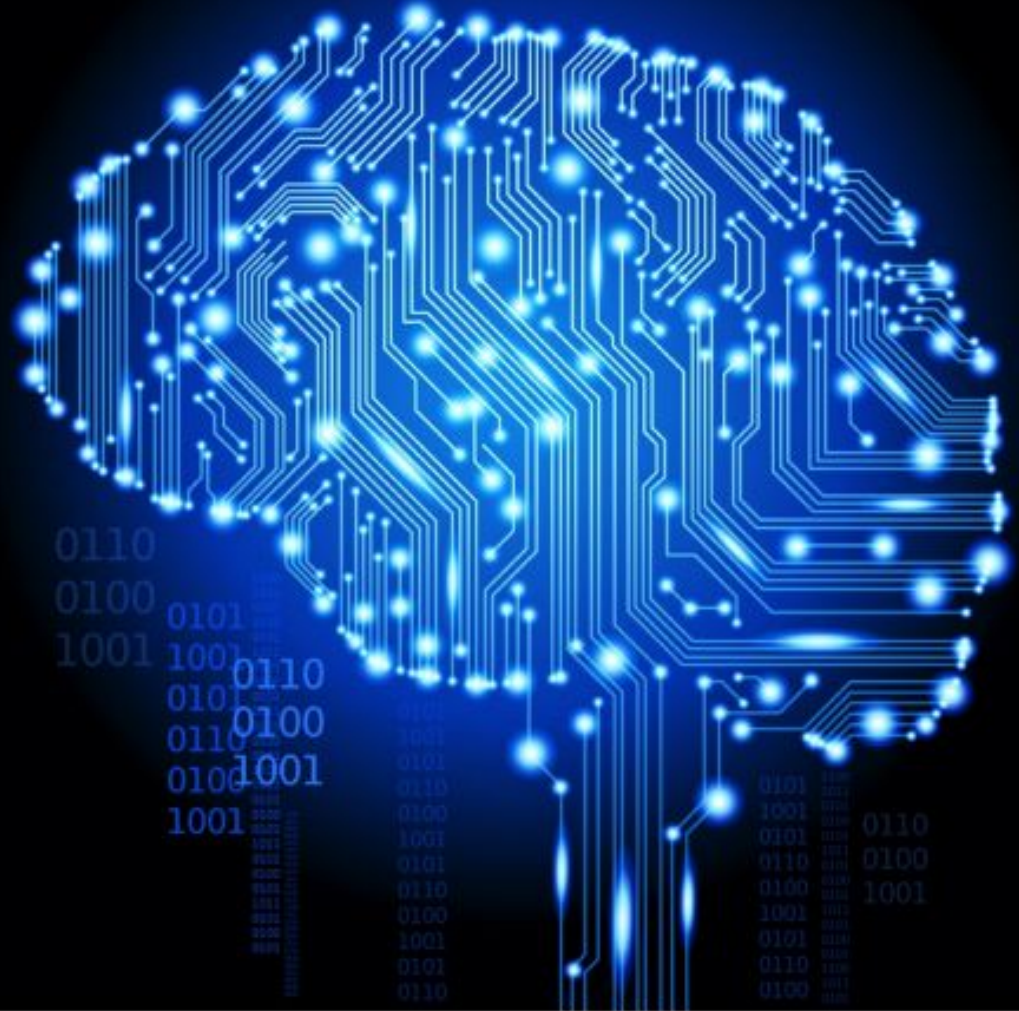
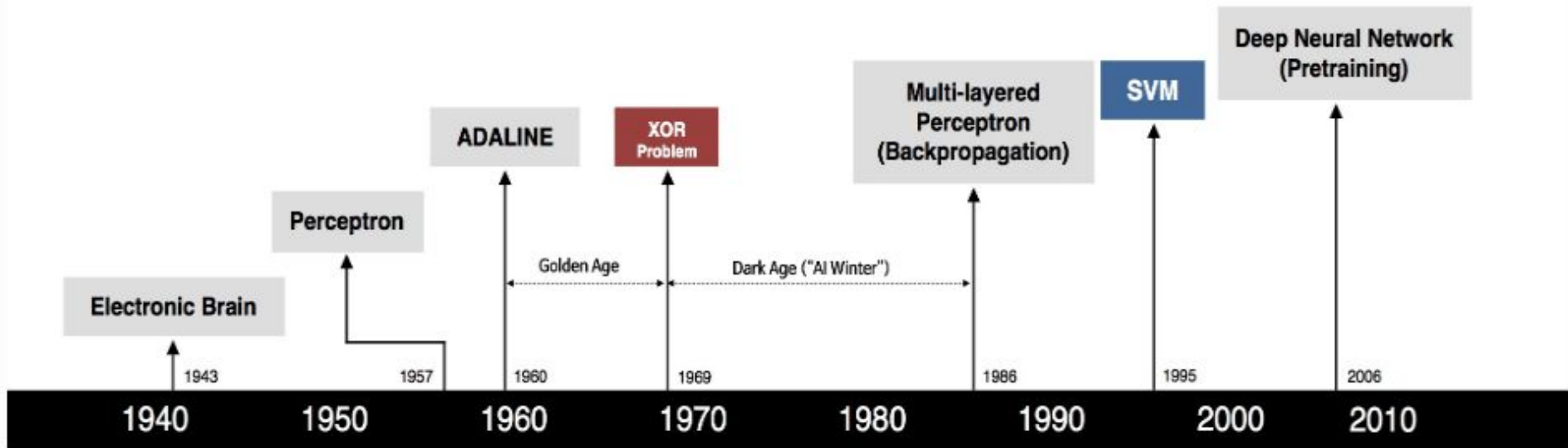
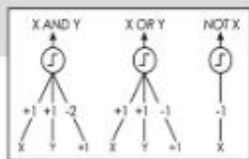


# Deep Learning





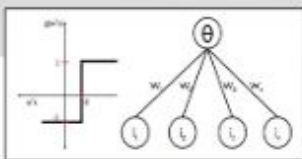
S. McCulloch - W. Pitts



- Adjustable Weights
- Weights are not Learned



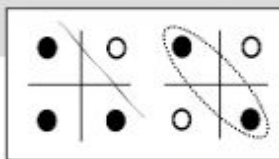
F. Rosenblatt B. Widrow - M. Hoff



- Learnable Weights and Threshold



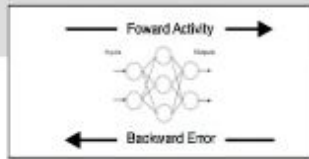
M. Minsky - S. Papert



- XOR Problem



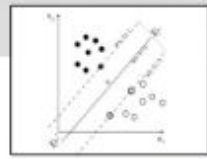
D. Rumelhart - G. Hinton - R. Williams



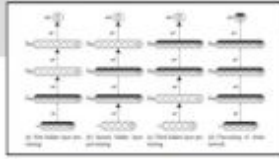
- Solution to nonlinearly separable problems
- Big computation, local optima and overfitting
- Limitations of learning prior knowledge
- Kernel function: Human Intervention



V. Vapnik - C. Cortes



G. Hinton - S. Ruslan



- Hierarchical feature Learning

# Seriously??



Computer Science > Computer Vision and Pattern Recognition

## Bringing Impressionism to Life with Neural Style Transfer in Come Swim

Bhautik Joshi, **Kristen Stewart**, David Shapiro

*(Submitted on 18 Jan 2017)*

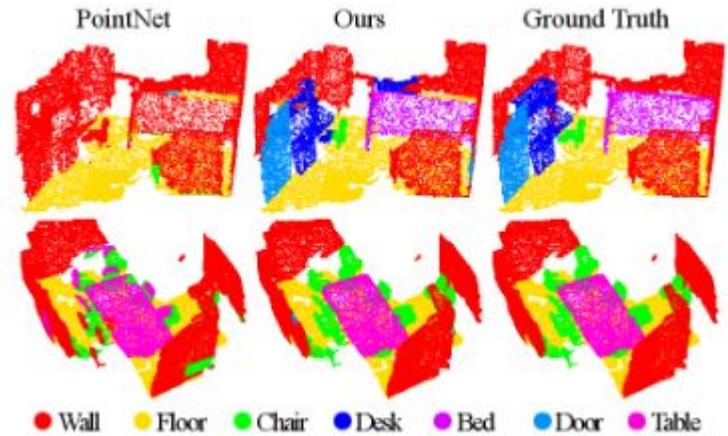
Neural Style Transfer is a striking, recently-developed technique that uses neural networks to artistically redraw an image in the style technique in a production setting, applying Neural Style Transfer to redraw key scenes in 'Come Swim' in the style of the impressionist. This can be driven within the framework of an iterative creative process to achieve a desired look, and propose a mapping of the broad palette. This mapping can provide insights into priorities for future research.

# Deep learning in 3D

- 3D Pose Estimation
- Single Object Classification
- Multiple Objects Detection
- Scene/Object Semantic Segmentation
- 3D Geometry Synthesis/Reconstruction
- Texture/Material Analysis and Synthesis
- Style Learning and Transfer
- Scene Synthesis/Reconstruction
- Scene Understanding

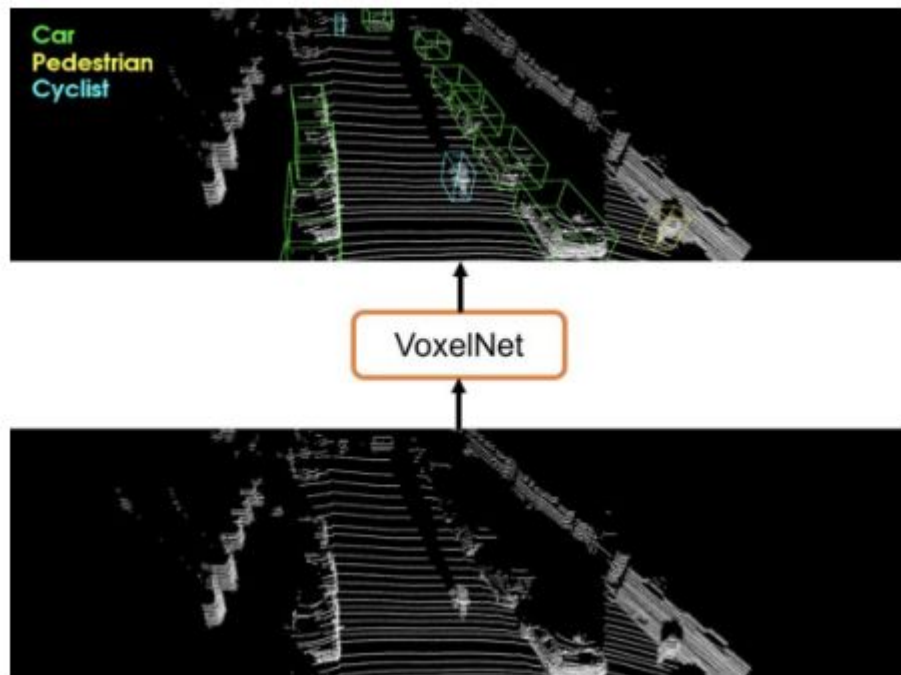
# Point Cloud Based

- PointNet
- PointNet++



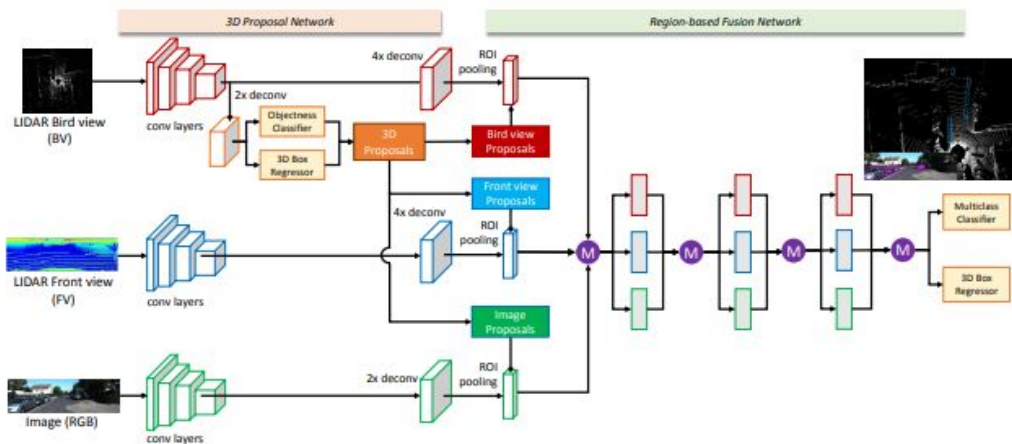
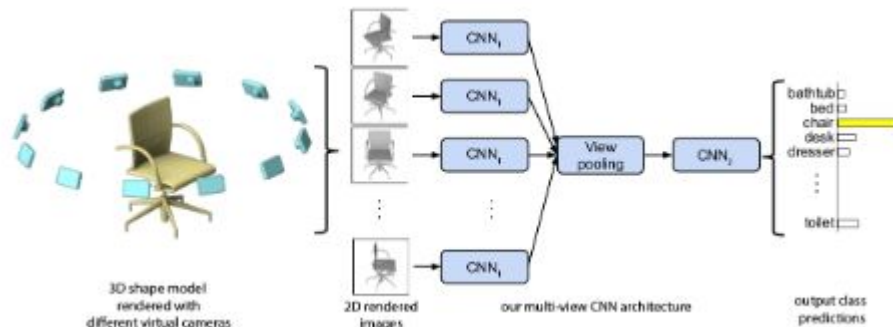
# Volumetric CNN

- 3d shapenet
- Voxnet (2015)
- Volumetric CNN (H.Su. 2016)
- VoxelNet (Apple, 2017)



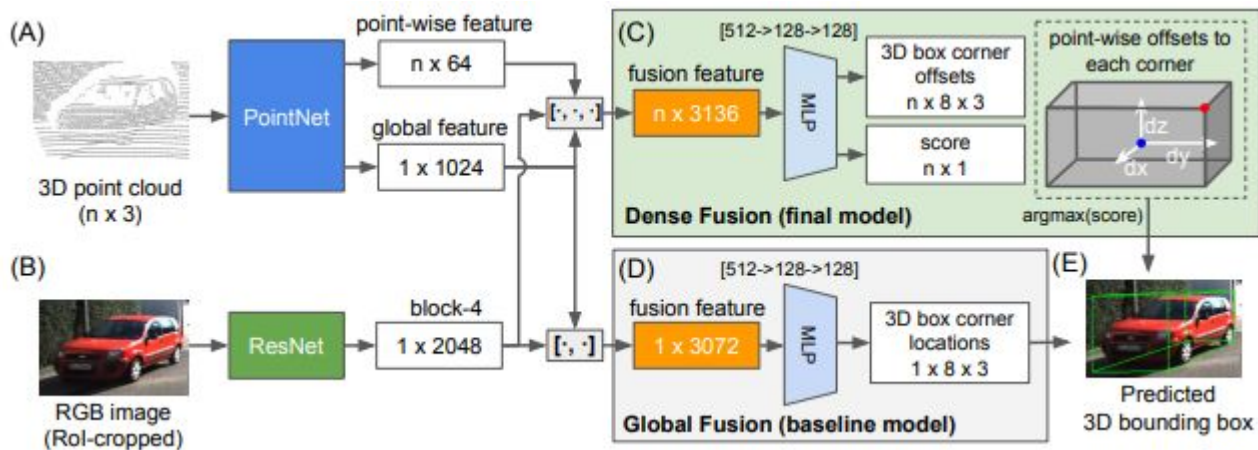
# Multiview CNN

- MultiView CNN for 3D
- Multiview CNN (H. Su.)
- MV3D for Autonomous V (Image + multiview)



# Fusions

- FusionNet (Voxel+Pixel)
- PointFusion (Sensor fusion)(image+PointNet,2018)





<https://www.youtube.com/watch?v=HO1LYJb818Q>

Thank You

